Volume 9

1967-1968

STATE OF ALASKA
Walter J. Hickel, Governor

ANNUAL REPORT OF PROGRESS, 1967 - 1968

FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-9

SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME
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INTRODUCTION

This report of progress consists of findings and work accomplished under the State of Alaska Federal Aid in Fish Restoration Project F-5-R-9, "Sport Fish Investigations of Alaska."

The project during this reporting period was composed of 21 separate studies. Of these, seven jobs continued the inventorying and cataloging of the numerous waters, providing a comprehensive index of the State's recreational waters. Nine jobs accomplished special studies involving Dolly Varden, grayling, silver salmon, king salmon and sheefish, among others. The remaining five jobs are designed to accomplish creel census, migration, access and silver salmon egg-take studies. The egg-take study, Job 7-F, was inactive because egg-takes were accomplished under other projects.

Special reports on specific phases of the Dolly Varden Life History Study have been published in the Department's Research Report series.

The information gathered from all of these studies provides the background necessary for better management and assists in development of future investigational studies.

The subject matter contained within these reports is often fragmentary in nature. The findings may not be conclusive and the interpretations contained therein are subject to re-evaluation as the work progresses.

RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska.

Project No.: F-5-R-9 Title: Population Studies of Anadromous Fish in Cook Inlet.

Job No.: 9-B

Period Covered: March 16, 1967 to March 15, 1968.

ABSTRACT

Alaskan anglers sport fishing for king salmon, Oncorhynchus tshawytscha in selected freshwater areas of Cook Inlet were required for the second consecutive year to record their catches by areas and dates on special king salmon punch cards. Of the 5,977 king salmon punch cards issued, 82 percent were returned to the Department of Fish and Game.

Creel census data obtained during the special king salmon punch card fishery revealed that 699 anglers fished 5,592 hours to catch 315 king salmon over 508 mm (20 inches); a seasonal rate of success of 0.05 fish per hour.

The age composition of sport caught Upper Cook Inlet king salmon over 508 mm was composed of three age groups as follows: 6 years old - 27 percent; 5 years old - 27 percent; and four years old - 46 percent.

A total of 529,226 smolt sized king salmon was marked with an adipose fin clip and released into Ship Creek.

The 1967 silver salmon season was disappointing; creel census data disclosed that 108 anglers fished 972 hours to catch 172 silvers on three streams on the west side of the Susitna River, a seasonal rate of success of 0.17 fish per hour. This represents a marked decline from the 1,069 fish taken during the 1966 season.

RECOMMENDATIONS

1. That this study be continued.

2. That annual spawning ground surveys be continued to obtain sex, length, and age compositions of the king salmon escapement in the Upper Cook Inlet drainage.

3. That a weir be constructed on Ship Creek for enumeration of king salmon adults, egg-taking purposes, timing of smolts and recovery of marked fish returns.

4. That salmon counting by acoustic means be initiated as a method for enumerating migrating adult salmon in selected streams.

OBJECTIVES

1. To determine the sport fish catch of king and silver salmon and evaluate angling pressure in the fresh waters of Upper Cook Inlet.

2. To determine the distribution, abundance, time of arrival, age composition, sex ratios and spawning areas of adult king and silver salmon in the various streams of Upper Cook Inlet.

3. To evaluate the contribution of the Fort Richardson Cooling Pond to the stocks of anadromous fishes to Ship Creek.

4. To investigate Ship and Campbell Creek, and the South Fork of Eagle River as a source for the procurement of king salmon eggs for experimental hatching and rearing.

TECHNIQUES USED

Creel census was undertaken during the king and silver salmon season to accumulate data on angling harvest. Lengths, weights, sex composition and scales from king and silver salmon were obtained during creel census checks of the fishery. Fish lengths were measured from the tip of snout to the fork in tail.

Aerial, river boat, and ground surveys were made to observe distribution, numbers, and time of arrival of adult king and silver salmon in Upper Cook Inlet streams.

King and silver salmon scales were prepared by the plastic impression method and age analysis accomplished by Department personnel. The European system was used to report the age classes.

An electrical shocking device, dip nets, and a 100- by 8-foot gill net with 5 1/4-inch stretch mesh were used in capturing adult king salmon.

FINDINGS

Past information collected on this project and a description of the Upper Cook Inlet area are presented in Dingell-Johnson Project Reports by Stefanich (1961) and Kubik (1962, 1963, 1964, 1965, 1966).

Sport fishing for king salmon was prohibited during 1964 and 1965 in an attempt to rebuild the king salmon stocks in Cook Inlet.

The history of the Cook Inlet king salmon fishery prior to 1965 has been presented in Volume 5, Job No. 9-B, Dingell-Johnson Reports, State of Alaska, 1963-64.

In April 1966, the Alaska Board of Fish and Game adopted a proposal to grant a limited sport fishing season for king salmon in selected fresh water streams of the Cook Inlet area.

The proposal allowed sport fishing for king salmon designated streams from May 28 through July 26 with the open season limited to Saturdays, Sundays, and Memorial Day. The Board action opened four streams in the upper inlet and four streams in the Kenai Peninsula area. A quota of 500 kings over 20 inches in the Kenai area, and 250 kings over 20 inches in the upper inlet area was established. The daily bag limit was set at one king salmon over 20 inches per day and two per season; king salmon under 20 inches were included in the general freshwater bag limit.

Anglers fishing for king salmon were required to record catches by area and dates on special king salmon punch cards. A description of the punch card is presented in Volume 8, Job No. 9-B, D-J Reports, State of Alaska, 1966-67.

During the 1967 special king salmon season, the same quotas were retained, but the fishing time was changed. The season was set from May 27 through June 11 on the Kenai streams, and from June 10 through June 26 for the Upper Cook Inlet streams. Fishing was allowed continuously through the season until the quota was reached. Weekend-only fishing, which was in effect in 1966, was eliminated.

Punch Card Fishery

A total of 5,977 king salmon punch cards was issued to anglers in the entire Cook Inlet area during the 1967 season, of which 82 percent were returned to the Department of Fish and Game. During the 1966 season, 77 percent of 8,853 cards issued were returned.

The 1967 recorded catch of king salmon, regardless of size, for Upper Cook Inlet streams was 482 fish, with 34 percent under 508 mm (20 inches). Table 1 shows the catch of king salmon over 508 mm by stream and date. Creel census data disclosed that 699 anglers fished 5,592 hours to catch 315 kings over 508 mm, a seasonal rate of success of 0.45 fish/angler.

TABLE 1 - Sport Fishing Harvest of King Salmon, 508 mm (20 inches) and Over Four Streams in Upper Cook Inlet, 1967.

Date	Deshka River	Lake Creek	Alexander Creek	Chunilna Creek	No. of Kings
6/10	80	11	6		97
6/11	16	8	2		26
6/12	9	4	1		14
6/13	17	1			18
6/14	13	4			17
6/15	14	5	1		20
6/16	14	4	4		22
6/17	37	7	2	1	47
6/18	25	10	4		39
6/19	9	6			15
Totals	234	60	20	1	315
Percent	74.4	19.0	6.3	0.3	100

Fishing pressure was highest on opening day and generally declined as the season progressed, with considerable increases on weekends. Analysis of harvest by daily periods showed 39 percent of the total harvest taken during the first weekend of the season.

For the second consecutive year, the most productive king salmon stream was the Deshka River. Of a total catch of 315 king salmon over 508 mm, 74 percent were caught from the Deshka River. The Deshka River also supported 68 percent of the total fishing effort.

Thirty-Four percent of the total anglers checked on 247 anglers were successful in landing one or two king salmon over 508 mm. Of the total successful fishermen, 73 percent were from the Deshka; 128 anglers caught 1 king, and 53 fishermen successfully took seasonal limits of two kings over 508 mm.

A sample of 186 king salmon ranged in length from 508 mm to 635 mm. There was a considerable reduction of fish caught in this size range compared with the 1966 catch containing 52 percent king salmon between 508 mm and 605 mm. Anglers during 1967 tended to be more selective to the larger fish. Numerous king salmon in the 508 mm to 635 mm range were released. A total of 32 "jacks", kings under 508 mm, had an average length of 368 mm with a range of 280 mm to 483 mm.

The average length of all males measured was 698 mm in 1967 and 671 mm in 1966, whereas the average length of the females was 922 mm in 1967 and 864 mm in 1966.

Sex ratio of males to females was 3.1:1 in 1967 compared to 1.3:1 in 1966.

Age was determined for 73 king salmon over 508 mm. Age composition of the sample was 46 percent age 1.2; 27 percent age 1.3; and 27 percent age 1.4 fish. Scale samples of 17 kings under 508 mm were read as 1.1.

The 1967 king salmon run into the Deshka River was predominately composed of age four fish. Age and length frequency composition indicates a fork length grouping of 508 mm to 730 mm for 1.2 fish. The most prevalent size group, as indicated in the test net and sport fisheries catch, are presumed to be age four fish.

TABLE 2 - Length Frequency Distribution of King Salmon Caught By Hook and Line and Test Net, Deshka River, 1967.

Length in Millimeters	Hook & Line No. of Fish	Test Net No. of Fish
508 - 556	4	2
558 - 607	31	16
609 - 658	25	14
660 - 708	11	10
711 - 759	5	2
762 - 810	11	
812 - 861	14	3
863 - 912	11	4
914 - 962	6	3
965 - 1,013	11	1
1,016 - 1,064	6	1
1,066 - 1,115	1	1
1,117 - 1,166	6	1
1,168 - 1,216		
1,219 - 1,267		1
TOTAL	142	59

Adult King Salmon Migration

Adult king salmon generally ascend the Susitna River in mid-May. Upstream migration continues until the first week in July.

Timing of the escapement into most of the Susitna tributaries is difficult to determine because of the silty and turbid water conditions.

In the lower portion of the Susitna River drainage, kings appeared in Alexander Creek and the Deshka River the last week in May in 1967. Kings were observed in the Yentna-Lake Creek area during the second week of June and in the Montana-Sheep Creek area the third week of June.

Distribution:

Since 1961, over 200 rivers and creeks have been investigated by means of test netting, tagging, foot and aerial surveys to obtain information on distribution of adult king salmon in the Upper Cook Inlet-Susitna River drainage, (Appendix A).

To date, although it is not conclusive that spawning takes place in all these streams, 78 streams were found to have king salmon present.

Escapement:

During 1967, population enumeration of king salmon was confined to 11 streams. Table 3 presents the escapement counts for Upper Cook Inlet index streams from 1962 through 1967.

Four streams on the east side of the Susitna River (Willow, Little Willow, Sheep, and Montana) showed a marked decline from the 1966 count and the average for the years 1962 through 1967.

TABLE 3 - King Salmon Escapement Counts, Upper Cook Inlet, 1962 - 1967.

STREAM	1967	1966	1965	1964	1963	1962	Mean 1962-67
Deshka River	2,500	2,000	2,749	2,422	131	998	1,800
Alexander Creek	500	300	400	205	750	19	362
Lake Creek	1,000	300	172	290	46	53	320
Chunilna Creek	*	300	8	319	38	70	147
Totals	4,000	2,900	3,329	3,236	965	1,140	2,629
Ship Creek	200	50	207	94	119	58	121
Campbell Creek	300	15	119	116	187	40	129
S.F. Eagle River	50	49	159	123	135	*	103
Totals	550	114	485	333	441	98	353
Willow Creek	24	103	35	51	55	71	56
Little Willow Cr.	6	38	3	7	11	26	15
Montana Creek	2	100	57	75	23	75	55
Sheep Creek	*	100	3	*	24	35	40
Totals	32	341	98	133	113	207	166

*No Count Available

The 1967 spawning populations of the other seven streams with the ex-

ception of Chunilna Creek, show a slight increase over the 1966 count.

Gill Net Test Fishing

Test net sampling was again employed during the 1967 field season to obtain general information relative to distribution, timing, length frequencies, age and sex composition. Sampling was conducted at the confluence of the Deshka and Susitna Rivers. Captured king salmon were measured and tagged with Peterson disc tags before being released into the Deshka River.

Test fishing commenced on May 21 and terminated on June 8, prior to the king salmon sport fishery. The first king was caught and tagged on May 30.

The fork length of 59 fish sampled ranged from 531 mm to 1,220 mm. The mean length was 701 mm as compared to 699 mm and 774 mm for the 1965 and 1966 test net fishing. Since all of the fish were tagged and released unharmed, sex determination by external characteristics was not attempted. Forty-four percent of the kings measured in 1967 were under 635 mm. No kings under 531 mm were caught in the "red gear," as 5 1/4-inch mesh rarely takes fish under 508 mm. Therefore only 4-, 5- and 6-year-old fish were effectively sampled. Sixty-four percent of the test net caught king salmon were 1.2 year old fish; 24 percent were 1.3 years old; and 12 percent were 1.4-year-old fish.

Three tagged fish were subsequently recovered of the 59 king salmon tagged on the Deshka River. One king tagged on June 8 was caught on June 10 by hook and line in the same vicinity where the fish was tagged. A set of tags minus the fish was found 15 miles upstream on the Deshka. The third recovered pair of tags was from a king marked on June 5 and taken by hook and line during the first week in July at Montana Creek. Apparently not all the kings caught at the mouth of the Deshka River are Deshka fish. Past and present tag and recovery data show marked fish being observed and captured in Sheep, Montana, and Willow Creeks, a distance of 7 to 30 river miles of northeast of the Deshka River.

Carcass Counts:

In conjunction with enumeration of spawners, all carcasses encountered on the Deshka River and Alexander Creek were examined for sex and size composition. Dead fish were measured from tip of snout to fork of tail (fork length).

Twenty-seven kings checked on the Deshka River ranged from 584 mm to 1,092 mm; males averaged 813 mm, while females averaged 840 mm. The ratio of females to males was 1.6:1. Twenty carcasses examined on Alexander Creek ranged in size from 609 mm to 1,041 mm; males averaged 676 mm while females averaged 915 mm. The ratio of males to females was 3:1, (Table 4).

TABLE 4 - Length Frequency of King Salmon Found Dead in Spawning Grounds, Deshka River and Alexander Creek, 1967.

Length (mm)	Alexander Creek		Deshka River	
	Female	Male	Female	Male
558 - 607				1
609 - 658		6		

TABLE 4 (Cont.) - Length Frequency of King Salmon Found Dead in Spawning Grounds, Deshka River and Alexander Creek, 1967.

Length (mm)	Alexander Creek		Deshka River	
	Female	Male	Female	Male
660 - 708		3		3
711 - 759				1
762 - 810		5		
812 - 861	1		2	
863 - 912	2	1	3	2
914 - 962			4	1
965 - 1013			2	
1016 - 1064	2		5	1
1066 - 1115			1	1
TOTALS	5	15	17	10

King Salmon Egg-Take

An attempt was made to obtain king salmon eggs from spawning adults in three Anchorage area streams. Egg take activities commenced on July 10 and terminated August 3. Department personnel and conservation agents from Ft. Richardson used electrical shocking devices and dip nets to capture 104 adult king salmon, (Table 5). A total of 153,800 eggs was obtained from 37 females for an average of 4,156 eggs per fish. Ten females for an average of 4,156 eggs per fish. Ten females died because of shocking, transportation, and handling.

Twenty-eight spawned female adult king salmon ranged in size from 914 mm to 1,105 mm with a mean length of 1,018 mm. Age analysis of 21 spawned-out females indicated 18 were 6-year-old fish and 3 were 5-year-old adults.

TABLE 5 - Streams in the Anchorage Area and Number of King Salmon Captured For Artificial Spawning, 1967.

STREAM	No. of Males	No. of Females	Spawned out Females
Ship Creek	13	17	2
S.F. Eagle River	19	9	4
Campbell Creek	23	11	6
TOTALS	55	37	12

Nine males used for fertilizing the eggs ranged from 590 mm to 1,175 mm with an average of 1,062 mm. Only a small sample of the males were checked for age; four were 6 years old and one was a 4-year-old. Most of the adult males measured were greater than 1,016 mm. The majority of males used for fertilization were 6-year-old adults (Table 6).

TABLE 6 - Age Composition, As Determined by Scale Readings and Length Frequency Distribution of King Salmon Used for Egg Take, 1967.

Length in mm	Male Age Group 1.2	1.3	1.4	Female Age Group 1.3	1.4	Combined Age Group 1.2	1.3	1.4
559 - 607	1					1		
914 - 963				3	1		3	1
965 - 1013					7			7
1016 - 1064					6			6
1067 - 1115					4			4
1117 - 1166			3					3
1168 - 1217			1					1
TOTALS	1		4	3	18	1	3	22

Fort Richardson Cooling Pond

A description of the Ft. Richardson Cooling Pond is presented in Volume 4, Job No. 9-B, Dingell-Johnson Report 1962-63, State of Alaska.

A total of 529,226 king salmon fingerlings weighing 11,553 pounds were liberated into Ship Creek during 1967. These fish were marked with an adipose fin clip.

A total of 54,710 fingerling king salmon from local Cook Inlet stocks averaging 18.6 per pound was released from the cooling pond into Ship Creek in early May; 474,516 kings of Green River, Washington origin at 58.4 per pound were planted in Ship Creek in late May and mid-June (Table 7).

TABLE 7 - King Salmon Released into Ship Creek from the Ft. Richardson Cooling Pond, 1967.

Date	No. of Kings		Source of Eggs	Brood Year
5/8	13,279		Ship Creek, Alaska	1966
5/9	5,123		" " "	
5/10	18,020		" " "	
5/11	13,165		" " "	
5/12	5,123		" " "	
	54,710	Total Ship Creek		
5/22	5,948		Green River, Washington	1966
5/23	8,094		" " "	
5/24	8,269		" " "	
5/26	6,943		" " "	
6/1	7,386		" " "	
6/12	41,793		" " "	
6/13	57,920		" " "	
6/14	76,406		" " "	
6/15	76,964		" " "	
6/16	75,263		" " "	
6/19	61,930		" " "	
6/20	30,212		" " "	
6/21	17,388		" " "	
	474,516	Total Green River		
	54,710			
	529,226	Total Release		

A total of 714,450 king salmon fingerlings have been marked and released into Ship Creek since 1963. To date there have been no observed returns from these releases, but it is anticipated that during 1968 there is a possibility of some returning fish from the 1964-65 brood release. Intensive mark recovery efforts are planned during 1968 to obtain information on any returning fish.

Silver Salmon

Silver salmon in Upper Cook Inlet tend to have much stronger runs during even years. The 1967 sport fish harvest on the west side of the Susitna River was poor as a result of low cycle-year abundance.

Creel census was confined to three streams on the west side: Deshka River, Lake and Alexander Creeks. Information received disclosed that 108 anglers fished 972 hours to catch 172 silver salmon, a seasonal rate of success of 0.17 fish per hour. Of the 172 silver salmon caught, 87 percent were taken from the Deshka River, 10 percent from Lake Creek and 3 percent from Alexander Creek. Although the Deshka River was monitored closely, there was a marked decline from the 1,069 fish taken during the 1966 season.

The age composition of Upper Cook Inlet silver salmon is composed of 3- and 4-year-old fish. Scales were read from 83 fish sampled from the sport fishery. Age analysis indicated that 71 percent were age 2.1 and 29 percent were 1.1 age fish.

Ninety-five silver salmon measured, ranged from 445 mm to 762 mm, with a mean of 584 mm. Male silver salmon averaged 582 mm and females averaged 598 mm. The mean sample weight for sport caught silver salmon was 5.5 pounds. The sex ratio of 95 fish sampled was 1:1.2 in favor of females.

Stream surveys in two index, west side Susitna tributaries conducted during August, indicated low escapement of silver salmon. Nineteen silver salmon were observed in the East Fork of the Deshka during 1967, as compared to 500-plus fish counted in 1966. A float trip over the entire length of Alexander Creek counted 102 silvers. Lake Creek, a third silver salmon index stream, was not surveyed due to adverse weather conditions.

Anchorage Area

Three streams, Eagle River, Ship and Campbell Creeks, in the Anchorage vicinity are known to have spawning populations of silver salmon. Prior to 1967 it was not known to what extent these streams were being utilized by silvers.

Foot surveys along Campbell Creek and the South Fork of Eagle River during September 1967, showed no salmon on the spawning grounds during this period.

Foot surveys along Ship Creek conducted during late September through early November revealed 230 silvers in the creek.

APPENDIX A. Results of Surveys of Upper Cook Inlet Streams to Determine Distribution of King Salmon Runs, 1961-1967.

STREAM	TRIBUTARY TO	REMARKS
Alexander Creek	Susitna River	KS observed spawning
Granite Creek	Alexander Creel	No salmon observed
Pierce Creek		
Sucker Creek		KS observed spawning
Trail Creek		No salmon observed
Bear Creek		No salmon observed
Texas Creek		No salmon observed
Clear Creek		No salmon observed
Deep Creek		No salmon observed
Wolverine Creek	Sucker Creek	KS observed spawning
Fish Creek	Kroto Slough	KS observed spawning
Whitsel Creek	Kroto Slough	No salmon observed
Skwentna River	Yentna River	KS observed
Seven Mile Creek	Skwentna River	No salmon observed
Talachulitna River		KS observed spawning
Eight Mile Creek	Talachulitna River	No salmon observed
Talachulitna Creek		KS observed spawning
Friday Creek		No salmon observed
Thursday Creek		No salmon observed
Trinity Creek		No salmon observed
Canyon Creek	Skwentna River	KS observed
Hayes River		No salmon observed
Old Man Creek		No salmon observed
Crystal Creek		No salmon observed
Emerald Creek		No salmon observed
Muddy Creek		No salmon observed
Portage Creek		KS observed
Happy River		No salmon observed
Canyon Creek	Happy River	No salmon observed
Squaw Creek		No salmon observed
Moose Creek		No salmon observed
Pass Creek	Moose Creek	No salmon observed
Three Mile Creek		No salmon observed
Glacier Creek	Happy River	No salmon observed
Shell Creek	Skwentna River	No salmon observed
Red Creek	Yentna River	KS observed
Johnson Creek		KS observed
Kichatna River		KS observed
Morris Creek	Kichatna River	No salmon observed
Nakochna River		No salmon observed
West Fork Yentna River	Yentna River	No salmon observed

STREAM	TRIBUTARY TO	REMARKS
Clearwater Creek	W. Fork Yentna River	No salmon observed
East Fork Yentna River	Yentna River	No salmon observed
Flag Creek	E. Fork Yentna River	No salmon observed
Youngstown Creek	Yentna River	KS observed
Konkey Creek	" "	KS observed
Fish Creek (unnamed on Map)	" "	KS observed
Hewitt Creek	" "	KS observed
Lake Creek	" "	KS observed
Yenlow Creek	Lake Creek	KS observed
Twin Creek	" "	KS observed spawning
Camp Creek	" "	KS observed spawning
Mills Creek	Camp Creek	No salmon observed
Cotton Creek	" "	No salmon observed
Pass Creek	" "	No salmon observed
Wolverine Creek	" "	No salmon observed
Slate Creek	" "	No salmon observed
Sunflower Creek	Lake Creek	KS observed spawning
California Creek	Sunflower Creek	No salmon observed
Idaho Creek	" "	No salmon observed
Stern Creek	" "	No salmon observed
Colorado Creek	" "	No salmon observed
Twin Creek	Lake Creek	KS observed spawning
Cripple Creek	" "	No salmon observed
Snowslide Creek	Cripple Creek	No salmon observed
Coffee Creek	Lake Creek	No salmon observed
Kahiltna River	Yentna River	KS observed
Treasure Creek	Kahiltna River	KS observed
Cache Creek	" "	KS observed spawning
Dollar Creek	Cache Creek	No salmon observed
Falls Creek	" "	No salmon observed
Thunder Creek	" "	No salmon observed
Nugget Creek	" "	No salmon observed
Gold Creek	" "	No salmon observed
Hungry Man Creek	Kahiltna River	KS observed
Bear Creek	" "	KS observed spawning
Peters Creek	" "	KS observed
Martin Creek	Peters Creek	KS observed spawning
Bird Creek	" "	No salmon observed
Willow Creek	" "	No salmon observed
Cottonwood Creek	" "	No salmon observed
Moose Creek	Yentna River	KS observed

STREAM	TRIBUTARY TO	REMARKS
Deshka River	Susitna River	KS observed spawning
Trappers Creek	Deshka River	KS observed spawning
Chiuk Creek	" "	KS observed spawning
Moose Creek	" "	KS observed spawning
Kroto Creek	" "	KS observed spawning
Twenty Mile	" "	KS observed spawning
Chulitna River	Susitna River	KS observed
Tokichitna River	Chulitna River	No salmon observed
Long Creek	Tokichitna River	No salmon observed
Ramadyke Creek	" "	No salmon observed
Wolf Creek	Ramadyke Creek	No salmon observed
Bear Creek	Tokichitna River	No salmon observed
Wildhorse Creek	Bear Creek	No salmon observed
Alder Creek	Tokichitna River	No salmon observed
Coffee River	Chulitna River	No salmon observed
Crystal Creek	Coffee River	No salmon observed
Cloud Creek	Crystal Creek	No salmon observed
Spink Creek	Chulitna River	No salmon observed
Hidden River	" "	No salmon observed
Skihi Creek	Hidden River	No salmon observed
Swift Creek	" "	No salmon observed
Fountain River	Chulitna River	No salmon observed
Partin Creek	Fountain River	No salmon observed
Coal Creek	Chulitna River	King salmon observed
Ohio Creek	" "	No Salmon observed
Shotgun Creek	Ohio Creek	No salmon observed
Little Shotgun Creek	Shotgun Creek	No salmon observed
McCallie Creek	Ohio Creek	No salmon observed
Copeland Creek	" "	No salmon observed
Long Creek	Chulitna River	No salmon observed
West Fork Chulitna River	" "	No salmon observed
Ruby Creek	W. Fork Chulitna River	No salmon observed
Colorado Creek	" " "	No salmon observed
Costello Creek	" " "	No salmon observed
Bull River	" " "	No salmon observed
Middle Fork Chulitna River	Chulitna River	No salmon observed

STREAM	TRIBUTARY TO	REMARKS
Squaw Creek	Middle Fork Chulitna R.	No salmon observed
East Fork Chulitna River	" " " "	No salmon observed
Crooked Creek	East Fork Chulitna R.	No salmon observed
Hardage Creek	" " " "	No salmon observed
Honolulu Creek	Chulitna River	KS observed
Little Honolulu Creek	" "	No salmon observed
Granite Creek	" "	No salmon observed
Pass Creek	" "	KS observed
Coal Creek	" "	KS observed
Little Coal Creek	" "	KS observed
Troublesome Creek	" "	KS observed
Byers Creek	" "	KS observed
Indian River	Susitna River	KS observed spawning
Portage Creek	" "	KS observed
Robideux Creek	" "	KS observed
Gold Creek	" "	No salmon observed
Deadhorse Creek	" "	No salmon observed
McKenzie Creek	" "	No salmon observed
Lane Creek	" "	No salmon observed
Talkeetna River	" "	KS observed
Sherman Creek	" "	No salmon observed
Chunilna Creek	Talkeetna River	KS observed spawning
Disappointment Creek	" "	No salmon observed
Prairie Creek	" "	KS observed spawning
Aspen Creek	" "	No salmon observed
Clear Creek	" "	No salmon observed
Yellow Jacket Creek	" "	No salmon observed
Iron Creek	" "	KS observed
Sheep Creek	" "	KS observed
East Fork Iron Creek	Iron Creek	No salmon observed
Prospect Creek	East Fork Iron Creek	No salmon observed
Middle Fork Iron Cr.	Iron Creek	No salmon observed
Birch Creek	Susitna River	No salmon observed
Question Creek	" "	No salmon observed
Sunshine Creek	" "	Reported in mouth
Montana Creek	" "	KS observed spawning
Goose Creek	" "	Reported in mouth
Sheep Creek	" "	KS observed spawning
Caswell Creek	" "	Reported in mouth
Kashwitna River	" "	Reported in mouth
N. Fork Kashwitna River	Kashwitna River	KS observed spawning
Bartholf Creek	" "	No salmon observed
Little Willow Creek	Susitna River	KS observed spawning
Rogers Creek	Little Willow Creek	No salmon observed
Willow Creek	Susitna River	KS observed spawning
Peters Creek	Willow Creek	No salmon observed

STREAM	TRIBUTARY TO	REMARKS
Purches Creek	Peters Creek	No salmon observed
Craigie Creek	Willow Creek	No salmon observed
Deception Creek	" "	No salmon observed
Lilly Creek	" "	No salmon observed
Fish Creek	Susitna River	No salmon observed
Little Susitna River	Cook Inlet	KS observed
Lewis River	Cook Inlet	KS observed spawning
Theodore River	" "	KS observed spawning
Beluga River	" "	KS observed
Olson Creek	Beluga River	KS observed spawning
Pretty Creek	" "	KS observed spawning
Bishop Creek	" "	KS observed spawning
Coal Creek	" "	No salmon observed
Lone King Creek	" "	No salmon observed
Strandline Creek	" "	No salmon observed
Chichantna River	" "	No salmon observed
Unnamed Creek	" "	No salmon observed
Chuit River	Cook Inlet	KS observed spawning
Lone Creek	Chuit River	No salmon observed
Nikolai Creek	Cook Inlet	No salmon observed
Chuitkilnachna Creek	" "	No salmon observed
Chakachatna River	" "	No salmon observed
Straight Creek	Chakachatna River	No salmon observed
McArthur River	Cook Inlet	No salmon observed
Bird Creek	Turnagain Arm	KS observed
Penguin Creek	Bird Creek	No salmon observed
Glacier Creek	Turnagain Arm	No salmon observed
Indian Creek	" "	No salmon observed
Rabbit Creek	" "	No salmon observed
Ship Creek	Cook Inlet	KS observed spawning
Campbell Creek	" "	KS observed spawning
North Fork Campbell Creek		KS observed spawning
South Fork Campbell Creek		KS observed spawning
Eagle River	Knik Arm	KS observed
South Fork	Eagle River	KS observed spawning
Thunderbird Creek	Knik Arm	No salmon observed
Peters Creek	" "	No salmon observed
Moose Creek	Matanuska River	KS observed spawning
Eska Creek	" "	No salmon observed
Granite Creek	" "	No salmon observed
Kings River	" "	KS observed spawning
Boulder Creek	" "	No salmon observed
Chickaloon River	" "	No salmon observed
Hicks Creek	" "	KS observed spawning
Caribou Creek	" "	KS observed
Squaw Creek	Caribou Creek	No salmon observed
Wolverine Creek	Matanuska River	No salmon observed

Prepared by:

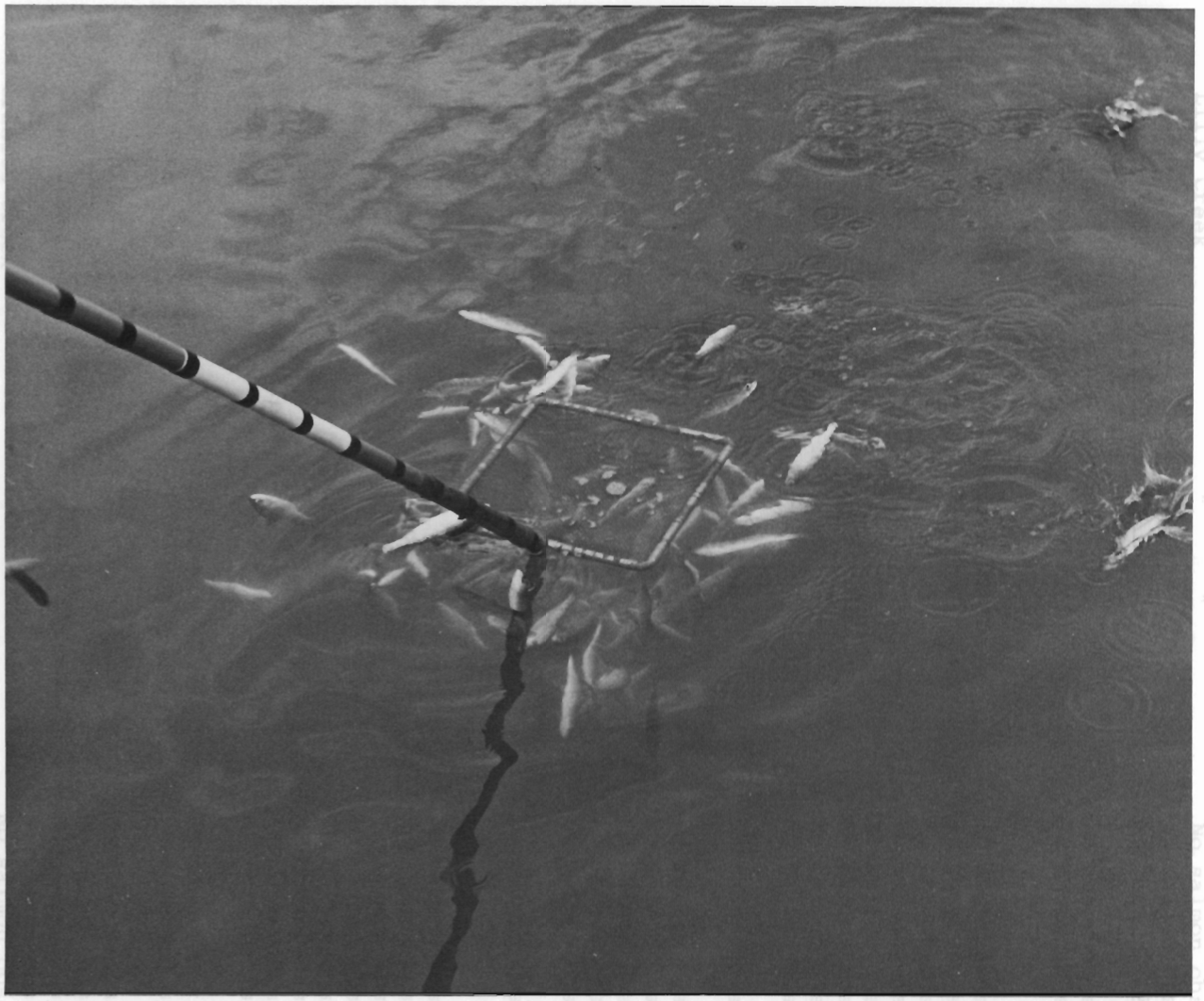
Stanley Kubik
Fishery Biologist

Date: March 15, 1968

Approved by:

s/Louis Bandirola
D-J Coordinator

s/Alex H. McRea, Director
Sport Fish Division



A D.C. Electro-Fisher in Operation. The Pulsating Current Causes the Fish to Swim to the Electrode Where They are Easily Netted. After Examination the Fish are Returned to the Water Unharmed.